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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,752	12/18/2000	Kazuya Yoneyama	KAW-239-USAP	1362

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Ronald R. Snider
P. O. Box 27613
Washington, DC 20038-7613

EXAMINER

YENKE, BRIAN P

ART UNIT	PAPER NUMBER
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2614

3

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/737,752

Applicant(s)

YONEYAMA, KAZUYA

Examiner

BRIAN P. YENKE

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 4 and 6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

2. Claim 5 objected to because of the following informalities:

Claim 5 states "curved surface" whereas it should state "curved mirror" as originally stated upon independent claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- 3a. Claims 1-3, 5 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Irwin, US 4,978,952.

In considering claim 1,

The claimed an illumination optical system for guiding light from a light source unit to an image display light valve element, wherein at least one curved mirror is disposed in an optical path of said illumination optical system is met by a video display system which

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utilizes LED's 25 (light source) where collimators 20 (at least one curved mirror) having both parabolic and hyperbolic mirrored surfaces (28 and 29 respectively, Fig 3, 4), where the light from the collimators 20 is passed to LCD assembly 30 (light valve).

In considering claim 2,

The claimed wherein said curved mirror forms a part of a curved surface having rotational symmetry about a predetermined axis is met where both the parabolic 28 and hyperbolic 29 (curved) mirrored surfaces a part of a curved collimator (Fig 3,4) which are symmetrical to the axis of projection.

In considering claim 3,

The claimed wherein said curved mirror is a parabolic mirror is met by parabolic mirrored surface 28 of collimators 20.

In considering claim 5,

The claimed wherein said curved mirror is a hyperbolic mirror is met by hyperbolic Mirrored surface 29 of collimators 20.

In considering claim 8,

The claimed a projection type image display apparatus comprising the illumination optical system according to claim 1 is met by a video display system which utilizes LED's 25 (light source) where collimators 20 (at least one curved mirror) having both parabolic and hyperbolic mirrored surfaces (28 and 29 respectively, Fig 3, 4), where the light from the collimators 20 is passed to LCD assembly 30 (light valve).

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3b. Claims 1-2 and 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Richards, US 5,671,992.

In considering claim 1,

The claimed an illumination optical system for guiding light from a light source unit to an image display light valve element, wherein at least one curved mirror is disposed in an optical path of said illumination optical system is met by stereoscopic display unit (10, 110), where video projector 14 (light source) which projects the image/light from mirror assembly 60, 62 and 66 (light valve) where a spherical mirror 64 is included in the projection patch (Fig 6).

In considering claim 2,

The claimed wherein said curved mirror forms a part of a curved surface having rotational symmetry about a predetermined axis is met where spherical mirror 64 is symmetrical with the axis of projection.

In considering claim 7,

The claimed wherein said curved mirror is a spherical mirror is met by spherical mirror 64.

In considering claim 8,

The claimed a projection type image display apparatus comprising the illumination optical system according to claim 1 is met by stereoscopic display unit (10, 110), where video projector 14 (light source) which projects the image/light from mirror assembly 60, 62 and 66 (light valve) where a spherical mirror 64 is included in the projection patch (Fig 6).

3c. Claims 1-3 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoki et al., US 4,971,436.

In considering claim 1,

The claimed an illumination optical system for guiding light from a light source unit to an image display light valve element, wherein at least one curved mirror is disposed in an optical path of said illumination optical system is met by the projection device which includes a light source 3 which is projected onto curved mirrors 21, 23 and 24 which also passes thru an interference filter 6 and LCD 22 (Fig 2).

In considering claim 2,

The claimed wherein said curved mirror forms a part of a curved surface having rotational symmetry about a predetermined axis is met where the curved mirrors 21, 23 and 24 are symmetrical with respect to the axis of projection.

In considering claim 3,

The claimed wherein said curved mirror is a parabolic mirror is met where the mirrors 21, 23 and 24, may be parabolic (col 3, line 37-42).

In considering claim 8,

The claimed a projection type image display apparatus comprising the illumination optical system according to claim 1 is met by the projection device which includes a light source 3 which is projected onto curved mirrors 21, 23 and 24 which also passes thru an interference filter 6 and LCD 22 (Fig 2).

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Allowable Subject Matter

4. Claims 4 and 6 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McKechnie et al., US 4,864,390 discloses a system where a curved mirror can replace a lens and a mirror;

Krause, US 5,944,403 discloses a virtual image projection device, using concave and spherical mirrors;

Iizuka, US 5,179,398 discloses a projector and image adjustment method using concave mirrors;

Um et al., US 5,245,369 discloses a scene projector using parabolic mirrors;

Yamagishi, US 5,777,695 discloses a light valve projection image display device which uses concave and parabolic mirrors;

Negishi et al., US 5,871,266 discloses a projection type display device using parabolic, spherical and curved mirrors;

Hasegawa, US 4,578,710 discloses a lens system for projection television using concave mirrors;

Saburi et al., US 5,760,931 discloses a image display unit using concave mirrors

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Yenke whose telephone number is (703) 305-9871. The examiner work schedule is Monday-Thursday, 0730-1830 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, John W. Miller, can be reached at (703)305-4795.

Any response to this action should be mailed to:


Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703)305-4700.

B.P.Y
September 22, 2003


JOHN MILLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600